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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,151	04/25/2000	TSUTOMU YAMAZAKI	15162/01860	9300

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SIDLEY AUSTIN BROWN & WOOD LLP
717 NORTH HARWOOD
SUITE 3400
DALLAS, TX 75201

EXAMINER	
DO, ANH HONG	
ART UNIT	PAPER NUMBER
2624	22

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/557,151	YAMAZAKI, TSUTOMU	
	Examiner	Art Unit	
	ANH H DO	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Appeal Brief, pages 7-8, paragraphs 4-5, filed 2/9/2004, with respect to the rejection(s)of claim(s) 1-15 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Takashima et al.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4-6, 9-11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashima et al. (U.S. Patent No. 5,189,528).

Regarding claim 1, Takashima discloses:

- an original edge detector for detecting an edge region in an image data (col. 34, lines 1-2);

- a density conversion unit for reducing a density difference within the edge region (col. 59, line 14 - col. 60, line 19, teaches reducing a density difference within the edge region using conversion table corresponding to the claimed density conversion unit);

- a compression unit for compressing the image data within the edge region where the density difference is reduced by said conversion unit (col. 34, lines 60-62, teaches a reduction LSI 354 for compressing data into 1/4);

- an expansion unit for expanding the image data compressed by said compression unit (col. 34, lines 65-66, teaches LSI 359 for expanding the data compressed by the reduction LSI 354).

Although Takashima does not specifically teach using discrete cosine transform, it is well-known in the art and can be used in an image compression such as a reduction LSI 354 in Takashima to help preventing density irregularity from appearing in a reproduced image (col. 1, line 68 - col. 2, line 1). Therefore it would have been obvious to employ a DCT in the reduction LSI in Takashima in order to obtain a high image quality of reproduced image.

Regarding claim 6, since this claim is a method claim corresponding to apparatus claim 1, the discussion of claim applies hereto.

Regarding claim 11, Takashima discloses a CPU reprogramming (col. 33, lines 50-53) to perform the steps in claim 6 and the discussion of claim 6 therefore applies hereto.

Regarding claims 4, 9, and 14, Takashima teaches an image reader for reading a document and generating an image data to be processed (col. 5, lines 3-9).

Regarding claims 5, 10, and 15, Takashima teaches a printer for printing an image data on a paper wherein said image data is the image data expanded by said expansion unit (col. 4, lines 15-18).

4. Claims 2, 3, 7, 8, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashima et al. (U.S. Patent No. 5,189,528) in view of Immink (U.S. Patent No. 5,774,077).

Takashima discloses a density conversion unit for reducing a density difference within the edge region (col. 59, line 14 - col. 60, line 19, teaches reducing a density difference within the edge region using conversion table corresponding to the claimed density conversion unit).

Takashima does not disclose expressly converting N-bits image data into (N-1)-bit image data and increasing a density value of the converted (N-1)-bit image data a certain amount.

Immink discloses reconverting means for reconverting the n-bit channel words into (n-1)-bit information words (col. 21, lines 30-31) and increasing a density value of the converted (N-1)-bit image data a certain amount (col. 21, lines 47-50, teaches setting a logical value in a third bit position in said (n-10-bit converted channel words).

Takashima & Immink are combinable because they are from image processing system.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to convert the n-bit channel words into (n-1)-bit information words (col. 21, lines 30-31) and increase a density value of the converted (N-1)-bit image data a certain amount in Takashima as taught by Immink.

The suggestion/motivation for doing so would have been to obtain a high quality image by recreating the original information word (col. 3, lines 43-47) or

by preventing density irregularity from appearing in a reproduced image (Takashima: col. 1, line 68 - col. 2, line 1).

Therefore, it would have been obvious to combine Takashima with Immink to obtain the invention as specified in claims 2, 3, 7, 8, 12, and 13.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANH H DO whose telephone number is 703-308-6720. The examiner can normally be reached on 5/4-9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID K MOORE can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 16, 2004

ANH HONG DO
PRIMARY EXAMINER